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ROYALITE OIL COMPANY, LIMITED

SUBJECT

SUBMISSION TO THE

ROYAL COMMISSION ON ENERGY

RE

ATHABASCA BITUMINOUS SANDS

DATE February 6th, 1958







## BITUMINOUS SAND DEPOSIT - PERMIT 17

Core drill surveys have been carried on by Royalite Oil Company, Limited in Prospecting Permit No. 17, at a locality in Township 93, Range 10, West 4. These surveys were carried on at various times in 1956 and 1957.

By the end of 1957 a total of 88 holes had been drilled in an area comprising 3200 acres. The location of the holes drilled appears on the map which is Figure 1.

### Core Hole Technique:

Equipment used consisted of a Failing 1500 drill which was adequate for this type of work. Coring was usually done with a 5 5/8" fish tail bit, although hard formation core heads were required for occasional ironstone bands.

Cores recovered were 1 7/8" diameter, caught in a regular Type J Hughes core barrel nine feet long. Core cuts were limited to a maximum of 7 1/2 feet to prevent packing. Core recovery in the bituminous sand was better than 90%.

Overburden consisted of variable sand and gravel to an average depth of 36 feet. Average hole depth was 225 feet and most core holes were bottomed in the Devonian limestone below the base of the bituminous sand.

### Coring and Sampling:

Coring and sampling in each hole was started where bituminous sand was first encountered as indicated by the first appearance of oil in the drilling mud. The whole bituminous sand formation below this point was cored.

Each core cut was carefully laid out and the mud allowed to drain off. Sampling and canning followed immediately, before freezing could occur. The whole core interval was carefully sampled, making sure that the samples





taken were a true representation of the core. The samples were placed in new quart-sized cans which were then sealed with a hand operated canning machine. Completely barren zones were not canned but sample chips were taken. All material saved was carefully labelled as to location and depth.

Cores were described at the site of the operation by the geologist in charge. A complete set of canned core samples was sent to Edmonton for laboratory analysis and determination of bitumen saturation by percent weight and percent volume. Bulk density and grain size determinations were made on cores from selected locations. These tests and analyses were made in a commercial laboratory using standard equipment and established procedures.


#### Calculation and Reserves:

In the Mildred Lake area the bituminous sand section as determined from core holes averaged 168 feet in thickness, with average overburden of 36 feet. The average bitumen content was determined from laboratory analyses as 8.6% by weight. A log plotted from information obtained in a core hole in the richer part of the area is shown as Figure 2.

Calculation of in-place oil in the bituminous sand was made by determining the weight percent of bitumen in the total sand section within the area examined. In order to make such calculations, it was necessary to establish certain basic units of measurement of weight and volume.

The weight of a barrel of clean separated bitumen recovered from the bituminous sands was established as 356 pounds. A cubic yard of average grade bituminous sand was found to weigh 1.6 tons. The calculation of the number of barrels contained in the bituminous sands in an area of one square mile is therefore expressed as follows:

$$1760 \times 1760 \times \frac{168}{3} \times 1.6 \times .086 \times \frac{2000}{356} = 134,000,000 \text{ barrels.}$$



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Total oil in-place in the area of 3200 acres examined by Royalite is calculated to be 670,000,000 barrels. This is believed to compare favorably with bituminous sand deposits in other localities within the general area, based on information now available.

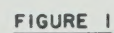
Extensive drilling of bituminous sand was carried on by the Department of Mines and Resources, Ottawa, during the period 1943 to 1947. The results of this work have shown a presence of a rich deposit in the area immediately south of the Royalite holdings where calculated reserves in the richer portion appear to be as much as 200,000,000 barrels per square mile in an area of 2880 acres.







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MILES







# ROYALITE OIL COMPANY LIMITED

## MILDRED LAKE CORE HOLE No.3

L.S.D.2, Sec.4, Twp.93, Rge.10W4 M

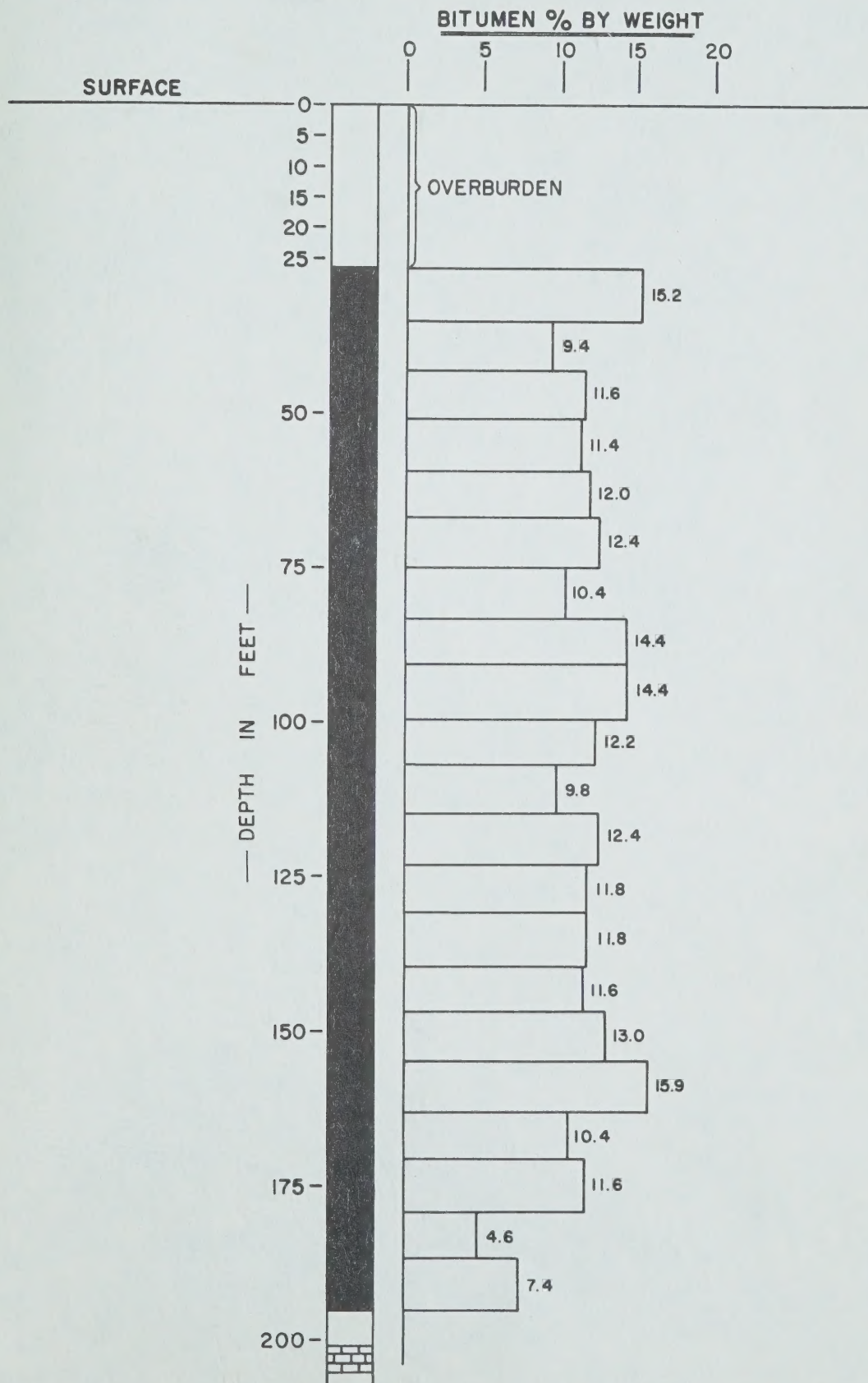


FIGURE 2









